fundamental category, which regard the process of purposive striving as radically different from mechanical sequence." The second route is the one adopted by the author, and throughout the book the purposive aspect is maintained as opposed to the mechanistic.

After a long introductory chapter in which historical and other preliminaries are disposed of, Professor McDougall proceeds to consider the behaviour of the lower animals, tracing the growth of its complexity from the Protozoa to the Natural Man. Here, two points are to be noted: first, the rejection of the view of the human mind as a thing apart, totally unlike in kind and not comparable to the animal mind and second, the acceptance of a real and essential relationship between the mind and the nervous system, a relationship sufficiently important to make the study of its anatomy and evolution a necessary part of the psychologists' training. Such a view will be encouraging to the biological student, who will be enabled to feel that the science of the mind deals, after all, with one of the manifestations of life and is not a subject entirely alien to his previous studies.

R. AUSTIN FREEMAN.

Reuter, Edward Byron, Ph.D. *The Problem of Population.* Lippincott Series in Biology. Edited by E. C. Hayes, Ph.D., LL.D. J. B. Lippincott, Co., 16, John vt., Adelphi, London. Price 8s. 6d. nett.

ALTHOUGH interest in the population question is rapidly growing all over the world, America still leads the way in the production of books on the subject, and there is probably no other country in which the fundamental principles of the Malthusian doctrine are accepted so generally by sociological authorities—a phenomenon which is all the more interesting in view of the comparatively low density of population, the great natural resources and wealth, and the low birth rate of the United States. Dr. Reuter who is Associate Professor of Sociology in the University of Iowa has made a valuable addition to the literature of the subject in the present volume, and it may well serve as a standard book of reference in view of the carefully coupled history of population theories, the citation of authorities, and the statistical and other information it contains. We have seen nothing so complete in these respects since Nitti's *Population and the Social System* which is now out of date as regards modern developments, and was unfortunately marred by a strong personal bias. Dr. Reuter's book is of special interest to Eugenists as it lays at least as much stress on the qualitative as the quantitative aspect of the population question; and in our view the former aspect will become increasingly important as the latter diminishes in importance with the declining birth-rate.

After a preliminary chapter in which the general nature of the problem and the scope of the book is outlined in clear and readable language, and which contains a salutary warning as to the unwisdom of most attempts at government interference in the matter, the author devotes two chapters to pre-Malthusian and the Malthusian doctrine of population which will be of great interest and value to students of the question. We are sorry to see, however, that the author, while

fully appreciating the importance of the Malthusian doctrine, has followed the almost universal practice of depreciating Malthus' presentations of the subject, notably as regards his famous ratios. Our own investigation of the subject has shown that the arithmetical increase of subsistence so constantly derided by other writers, and which was only put forward by Malthus for the sake of illustration, was a most remarkably close guess at the truth, and that it even has a fairly sound theoretical basis. The estimates of the world's population made by various authorities at different times, show a remarkably constant arithmetical increase; and the practically constant amount of solar radiation falling on our globe naturally tends to a steady increase of organic products. The tendency to check the growing appreciation of the Malthusian doctrine by a totally unwarranted disparagement of its author's presentation therefore calls for strong protest.

A chapter then follows on other theories of population which have arisen since Malthus, including those of Doubleday and Nitti, to which might have been added that of Mr. C. E. Pell. Here again the author seems to have fallen into the almost universal error of taking the changes which have taken place in the birth-rate in different social strata in recent times as evidence of some new natural law of dependence of fertility on food or intellect or social status, without consideration of the enormous effect of the spread of contraceptive knowledge and practice. Neither statistical nor other evidence show these differences in fertility in this country before the great advertisement of birth-control methods given by the Bradlaugh-Besant trial of 1876 from which the decline in the birth-rate in many countries dates, and the differences in fertility, now shown between various grades and sections of society are much more reasonably to be ascribed to their knowledge of and readiness to adopt such methods, than to any intrinsic difference in potential fertility, especially when we bear in mind the almost insuperable obstacles which have been interposed to their popularisation. While it would be unscientific to deny the possibility of other influences on human fertility (venereal disease is obviously an important factor) it is certainly absurd to put forward new laws of population without regard to this great and increasingly important phenomenon, which so far from invalidating Malthus' theory, is the direct result of its appreciation by neo-Malthusian propagandists, and their advocacy of a practicable "prudential check," which has diminished the "positive check" of early death precisely as indicated by that theory.

Another popular fallacy repeated by the author is the time-worn one that a death-rate of ten per thousand or less such as now prevails in certain new countries cannot be long maintained, as it would imply an average longevity of a hundred years. This is only true for a stationary population and a country may have a death-rate of only ten per thousand with a birth rate of 20 and a longevity of only 70 years, so long as it can support an annual increase of one per cent. This is a point of great practical importance, as statistical opponents of birth-control are constantly raising an unwarranted scare of depopulation by claiming that it will soon result in an increased death-rate.

Apart from these criticisms, which we hope Dr. Reuter will con-

sider in any future edition of his book, we find ourselves in general agreement with his position. His chapters on "Differences in Population" and "The Conventional Classes" in which he discusses the vexed question of the intrinsic hereditary inferiority of the lower strata will probably appear too lukewarm to the ardent Eugenist, as he states the rival claims of "Nature" and "Nurture" in a judicially impartial spirit; but they will probably be all the more acceptable to the average reader in consequence. The author strongly deprecates all attempts at setting up opposition between these claims, but he is perhaps insufficiently alive to the impossibility of securing satisfactory environment for the mass of the people in overpopulated countries and the consequent painful necessity for insisting on the importance of parental responsibility.

The statistical information compiled by the author is of great interest, and the clear and easily readable style of the book should ensure it a wide and useful circulation.

C.V.D.

Stocks, P., M.D., D.P.H., assisted by **Karn, N.** *Blood Pressure in Early Life.* A Statistical Study Department of Applied Statistics, University of London, University College. Cambridge University Press. 1924. Pp. iii + 88. Price 12s.

In this book Dr. Stocks has correlated a large number of observations not only of blood pressure and its relation to age, but also the effect of race, sex and upbringing on this and such related phenomena as the pulse rate and work of the heart. These observations fill a long felt gap for the medical man, not only for his ordinary routine work, but are of special importance when he comes to deal with insurance questions. Until now we have not known exactly what the variations in the blood pressure are at different ages, and neither have we known what variations to expect in this quantity at any specified age.

To deal at any length with the many points elucidated by Dr. Stocks is rather too much for a review of this kind, but a few of the more important may be noticed in passing. The reviewer of this paper is by inclination a physiologist rather than a statistician and it is from the physiological rather than the statistical standpoint that this short epitome is written. The author finds that whereas the systolic pressure rises steadily until puberty is reached, at this age its increase is accelerated until in early manhood it becomes constant. On the other hand, the diastolic pressure gradient although steadily increasing until puberty, falls off during this period but afterwards rises to a steady value. The pulse pressure i.e. the difference between systolic and diastolic pressure, as would be expected, shows a marked increase at puberty.

Dr. Stocks has attempted to calculate the energy output of the heart at different ages by taking the product of the pulse pressure and pulse rate as a measure of the energy expended per minute in maintaining the circulation. To obtain the total energy expenditure per minute it is necessary to multiply this by the output of the heart. The author assumes that the output of the heart is proportional to the size of the